COMMUNICATION TOWER AND ANTENNA CONSULTATION IN NEW JERSEY

The U.S. Fish and Wildlife Service's (Service) New Jersey Field Office recognizes that individual project review by the Service is not required under certain conditions. The Service provides the following comments in accordance with provisions of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq*.), the Migratory Bird Treaty Act of 1918 (MBTA) (40 Stat. 755; 16 U.S.C. 703-712), the Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-688d), and the National Environmental Policy Act of 1969 (83 Stat. 852; 42 U.S.C. 4321 *et seq*.).

Migratory birds are a Federal trust resource and are protected under the MBTA. Communication towers may pose a hazard to migrating birds and to birds nesting in the area. Risk factors include tower height, physical design, lighting, and site location relative to migratory corridors and bird concentration areas. In addition, certain communication towers may adversely affect federally listed threatened and endangered species through direct disturbance of listed plants and animals, impacts to their habitats, and/or creation of a collision hazard for listed birds and bats.

The Service has determined that the following proposed actions are not likely to adversely affect federally listed species in New Jersey, nor have any significant impacts on migratory birds or other wildlife resources under Service jurisdiction:

- routine maintenance (*e.g.*, painting, antenna replacement) at existing tower sites or other existing tower support structures;
- repair or replacement of existing towers and/or equipment;
- collocation of new equipment or antennas on an existing structure (*e.g*, tower, water tank, flagpole, building), where proposed activities will not require the addition of lights or guy wires to an existing structure, or increase the height of an existing structure above 200 feet; and
- construction of new towers without lights or guy wires, under 200 feet in height

PROVIDED that:

(1) all ground disturbance is at least 150 feet from any beach or dune;

(2) in municipalities* with extant, historic, or potential occurrence of any federally listed or candidate species, any net gain in impervious surface is under 0.25 acre, AND all ground disturbance is limited to previously developed or disturbed areas (*e.g.*, rooftops, pavement, gravel, maintained lawn, active farm field, unvegetated/bare ground);

(3) in municipalities* with extant, historic, or potential occurrence of bog turtle, Indiana bat, dwarf wedgemussel, swamp pink, Knieskern's beaked-rush, sensitive joint-vetch, bog asphodel, or Hirsts' panic grass, all ground disturbance is at least 150 feet from any wetland or open water (*e.g.*, river, stream, pond, lake);

(4) in municipalities* with extant (*i.e.*, hibernation, maternity) or potential occurrence of Indiana bat, any tree clearing is under 0.25 acre (including for access roads) and trees over 5 inches diameter at breast height will be cut between October 1 and March 31; in municipalities with hibernation occurrence, cutting will occur between November 16 and March 31;

(5) the project is consistent with the Service's National Bald Eagle Management Guidelines (http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf); and

(6) the project is not located in a National Wildlife Refuge (Refuge boundary mapping is available at http://picard.fws.gov/metadata.html#New%20Jersey).

Do not contact this office for review of projects that meet the above criteria. This document may be used as the Service's concurrence with an ESA determination of "not likely to adversely affect" federally listed species for projects in New Jersey that meet the above criteria.

*See the list of species occurrence by municipality at http://www.fws.gov/northeast/njfieldoffice/Endangered/ November 2008

COMMUNICATION TOWERS AND ANTENNAS: ENVIRONMENTAL REVIEW PROCEDURES AND RECOMMENDATIONS FOR AVOIDING IMPACTS TO WILDLIFE

INTRODUCTION

Wireless communication towers and antennas in New Jersey have greatly increased in number in recent years. Cumulatively, communication towers have a potentially significant impact on wildlife, especially migratory birds. All communication towers and antennas requiring authorization from the Federal Communications Commission (FCC) are subject to the environmental review procedures required by Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq*.) (ESA) and by the National Environmental Policy Act (83 Stat. 852; 42 U.S.C. 4321 *et seq*.) (NEPA). The U.S. Fish and Wildlife Service (Service) routinely reviews proposed communication projects and provides recommendations to project proponents and the FCC to avoid adverse impacts to federally listed endangered and threatened species, migratory birds, and other wildlife.

This paper provides information on: potential impacts to fish, wildlife, and other resources from communication towers; concerns regarding tower siting near Wilderness Areas and National Wildlife Refuges; and required environmental review procedures for wireless communication facilities. Recommendations to avoid adverse impacts to wildlife through tower siting and design are also included. Sources of additional information and a Tower Site Evaluation Form are also provided. The form is a tool developed by the Service to assist project proponents, planners, natural resource managers, and others in making tower siting decisions. Information and recommendations contained in this paper reflect the September 14, 2000 Service Interim Guidelines for Recommendations On Communications Tower Siting, Construction, Operation, and Decommissioning.

MIGRATORY BIRDS

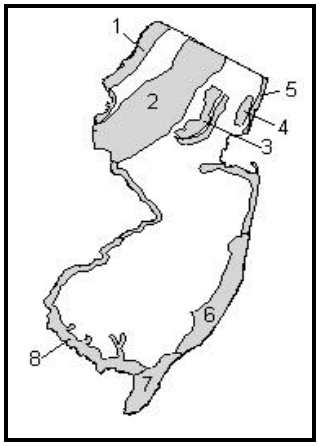

Figure 1. Critical Migratory Bird Areas (Dunne, 1989).

All native migratory birds (e.g., waterfowl, shorebirds, passerines, hawks, owls, vultures, falcons) are afforded protection under the Migratory Bird Treaty Act (40 Stat. 755; 16 U.S.C. 703-712). Migratory birds are a federal trust resource responsibility, and the Service considers migratory bird concentration areas environmentally significant. Bird concentration areas include: traditional migratory flight corridors (e.g., ridges, shorelines, river valleys); rookeries and other bird breeding areas; stopover, staging or resting areas (e.g., land bounding large bodies of water, wetlands, forests, and natural grasslands); wildlife preserves (e.g., National Wildlife Refuges; State Parks, Forests, Wildlife Management Areas, and Natural Areas; private sanctuaries); and seasonal flight paths (e.g., between feeding and nesting or roosting areas). Some critical bird migration corridors in New Jersey (Figure 1) include: (1) Appalachian ridges and valleys; (2) the Highlands; (3) central Passaic wetlands; (4) the New York/New Jersey Harbor Estuary area, including the Hackensack Meadowlands; (5) the Palisades; (6) Atlantic Coast beaches, bays, and barrier islands; (7) the Cape May Peninsula; and (8) the Delaware Bayshore. In addition, the Service maintains five National Wildlife Refuges in New Jersey; further information is provided below.

Communication towers pose a collision hazard to birds in flight, especially some 350 species of night-migrating birds. Cumulatively, communication towers kill an estimated four to five million birds per year nationwide (Manville, 2000). The risk of bird collisions is related to tower height, design, lighting, and location relative to migratory bird concentration areas. Most documented bird kills at communication towers involve tall, lighted structures, and birds migrating at night during inclement weather. During these events, birds attracted by the lights congregate and circle around the tower, with mortality resulting from collisions with guy wires, other birds, and the ground, or from exhaustion. However, occurrences of bird collision mortality at communication towers have also been documented during daytime and fair-weather conditions.

NATIONAL WILDLIFE REFUGES

The Service administers a national system of wildlife refuges. A key purpose of the National Wildlife Refuge (NWR) System is to protect and maintain habitat for migratory birds and other wildlife. Five NWRs have been established within the State of New Jersey, each with a role in protecting the diversity of the Nation's flora and fauna and the natural habitats upon which native species depend. The five NWRs in New Jersey are (Figure 2): Wallkill River, Great Swamp, Edwin B. Forsythe, Supawna Meadows, and Cape May. The National Wildlife Refuge System Improvement Act of 1997 (105 Stat. 57; 16 U.S.C. 668dd-668ee, as amended) provides guidelines and directives for administration and management of all areas in the refuge system. Any proposal to construct a commercial communication tower or antenna facility within a NWR would require a compatibility determination (65 FR 62457-62483; 50 CFR 25, 26 and 29) before a Special Use Permit would be granted from the Service's Division of Refuges and Wildlife.

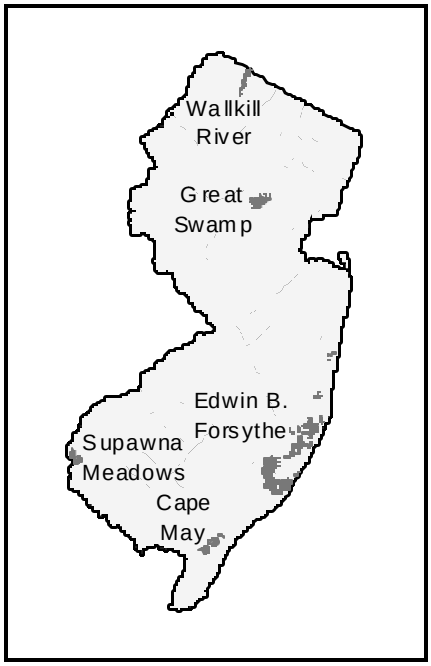

Figure 2. National Wildlife Refuges

WILDERNESS AREAS

Wilderness is a designation made by Congress pursuant to the Wilderness Act (78 Stat. 890; 16 U.S.C. 1131-1136), which established the National Wilderness Preservation System. The Act defines wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain; an area of underdeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation and which is protected and managed to preserve its natural conditions." Permanent structures, including communication towers and antenna facilities, are prohibited in federally designated wilderness areas. In New Jersey, federally designated wilderness areas are included within the Great Swamp and Edwin B. Forsythe NWRs. These areas are given the added designation of “wilderness” to preserve their natural values.

ENVIRONMENTAL REVIEW PROCEDURES

Endangered Species Act

Threatened and endangered species and their habitats are afforded protection under the ESA pursuant to Section 7(a)(2), which requires every federal agency in consultation with the Service to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. Consultation with the Service pursuant to Section 7(a)(2) of the ESA must be carried out for all projects licensed or otherwise authorized by a federal agency, including the FCC, prior to project implementation for any project that may affect a federally listed species. The FCC complies with this provision of the ESA through its rules implementing NEPA (47 CFR 1.1301 to 1.1319).

Regulations implementing the ESA (50 CFR Part 402.14) specify that a federal agency shall make no irreversible or irretrievable commitment of resources that would prevent formulating or implementing any reasonable and prudent alternatives for an action. This prohibition is in force until the requirements of Section 7(a)(2) are satisfied.

National Environmental Policy Act

The FCC requires all license applicants for antenna facilities and structures, including towers, to review their proposed actions for environmental consequences. Regulations implementing NEPA with regard to actions of the FCC are presented under 47 CFR Sections 1.1301 to 1.1319. These rules place responsibility on each applicant to investigate all of the potential environmental effects of antenna facility construction.

Section 1.1307(a) lists eight categories of projects that may significantly affect the environment. Among these are facilities to be located in officially designated wilderness areas or wildlife preserves, facilities that may affect federally listed threatened or endangered species or designated critical habitats, facilities to be located in a flood plain, and facilities whose construction will involve significant change in surface features such as wetland fill, deforestation or water diversion. Proposed antenna facilities that do not fall under any of the eight categories listed at 1.1307(a) are "categorically excluded" from further environmental processing. However, if a proposed antenna facility falls under one or more of the listed categories, Section 1.1308(a) requires the applicant to prepare an Environmental Assessment (EA). Preparation of an EA may also be required for facilities otherwise categorically excluded, if an interested party petitions the FCC with environmental concerns (Section 1.1307(c)), or if the FCC determines on its own that the project may have a significant environmental impact (Section 1.1307(d)). The applicant is responsible for determining whether the proposed facility meets any of the conditions that require an EA. This environmental screening is normally accomplished through the preparation of a "Categorical Exclusion" document. The Categorical Exclusion document (or, if required, the EA) must be prepared prior to project implementation.

Any required EAs must address alternative sites or facilities (Section 1.1311(a)(4)); zoning issues (Section 1.1311(a)(2)); and determinations of any local, State, and federal authorities regarding environmental effects (Section 1.1311(a)(2)). In addition, the EA must deal specifically with any feature of the site that has special environmental significance (e.g., wilderness areas, wildlife preserves, natural migration paths for birds and other wildlife). The EA must also detail any substantial change in the character of the land utilized (e.g., deforestation, water diversion, wetland fill, or other extensive change of surface features). In the case of wilderness areas, wildlife preserves, or other like areas, the EA must discuss the effect of any continuing pattern of human intrusion into the area (e.g., necessitated by the operation and maintenance of the facilities) (Section 1.1311(b)).

Role of the Service in Communication Project Review

Endangered Species

As noted above, federal regulations implementing NEPA require FCC applicants to prepare an EA for a proposed communication tower or antenna that may adversely affect a federally listed species. Therefore, prior to applying for FCC authorization, communication project proponents routinely submit project information to the Service for review, pursuant to Section 7 of the ESA, to determine whether project implementation is likely to adversely affect any federally listed species.

If a listed species is present in the vicinity of the project site, the Service works with the project proponent through the informal consultation process to gather additional information, conduct surveys, or modify the project to avoid adverse impacts to the species. If, after these steps, project implementation is still likely to adversely affect a listed species, the Service will recommend that the project proponent prepare a Biological Assessment (BA) pursuant to Section 7(c) of the ESA. A proposed project that may affect a federally listed species also requires preparation of an EA pursuant to NEPA regulations (47 CFR 1.1307(a)). The BA may be consolidated with interagency cooperation procedures required by other statutes, such as NEPA, and the results of a BA may be incorporated into an EA or an into Environmental Impact Statement. The satisfaction of the requirements of other statutes, however, does not in itself relieve a federal agency of its obligation to comply with the BA procedures of the ESA. The BA should contain information concerning listed or proposed species that may be present in the action area, and an analysis of any potential effects of the proposed action on such species. The Services reviews the BA to determine if formal consultation pursuant to Section 7 of the ESA is required.

Migratory Birds

Migratory birds are a federal trust resource, protected under the Migratory Bird Treaty Act. Since communication towers and other tall structures represent a potential collision hazard to migrating birds, the Service's New Jersey Field Office (NJFO) routinely considers the design of new

communication towers, and their locations relative to migratory corridors and bird concentration areas, concurrent with endangered species reviews. If a proposed tower represents a significant hazard to migratory birds (e.g., towers taller than 199 feet with lights and/or guy wires in or near a bird concentration area), the Service recommends that the applicant address migratory bird concerns in an EA.

State and Local Review

In addition to the above-mentioned federal laws, communication towers and antennas are also subject to State laws, regulations, and environmental review procedures. Some relevant New Jersey State laws include:

- Freshwater Wetlands Protection Act (N.J.S.A. 13:9B *et seq*.) requires permits for certain activities in wetlands.

- Endangered and Nongame Species Conservation Act of 1973, as amended (N.J.S.A. 23:2A *et seq*.) prohibits taking, possessing, transporting, exporting, processing, selling, or shipping State-listed wildlife species. "Take" is defined by the law as harassing, hunting, capturing, or killing, or attempting to do so.

- Regulations implementing the Pinelands Protection Act (N.J.A.C. 7:50-5.4 *et seq*.) require authorization from the New Jersey Pinelands Commission for most structures to be located within the Pinelands National Reserve exceeding 35 feet in height.

- Coastal Area Facility Review Act (N.J.S.A. 13:19) regulates most development near coastal waters in the southern part of the State, and the Waterfront Development Law (N.J.S.A. 12:5) regulates activities in and near tidal waters.

Local ordinances, including zoning rules, also apply to communication towers and antennas. The Telecommunications Act of 1996 (Act) specifically preserves the authority of State and local governments over decisions regarding the placement, construction, and modification of personal wireless service facilities, with some exceptions. According to the Act, State and local governments may not unreasonably discriminate among providers of functionally equivalent services, and must act upon a request for authorization to place, construct, or modify personal wireless service facilities within a reasonable time. In addition, as long as proposed wireless communication facilities comply with FCC regulations regarding radio frequency (RF) emissions, the Act expressly preempts State and local governments from regulating the placement or construction of these facilities on the basis of the environmental effects of RF emissions. With these restrictions and in accordance with other applicable laws, State and local governments may exercise discretion in siting and authorizing new communication towers and antennas.

RECOMMENDATIONS TO AVOID ADVERSE IMPACTS TO MIGRATORY BIRDS, FEDERALLY LISTED SPECIES, AND OTHER WILDLIFE

The Service recommends the following steps to avoid or minimize adverse impacts to migratory birds, federally listed endangered and threatened species, and other wildlife from communication towers and antennas:

1. Collocate communication antennas and other equipment on existing structures whenever possible to avoid new tower construction. Antennas have been mounted on rooftops; flagpoles; bell, cross, and clock towers; road signs; silos; and water and power line towers. Where attachment to an existing non-tower structure is not feasible, collocate antennas on existing communication towers. Depending on tower load factors, multiple (6-10) providers may collocate on a single communication tower. Although usually a preferred option, collocation on certain structures may be restricted, such as historic sites, or silos on farms under State or county deed restriction for farm preservation, which prohibits non-agricultural activities.

2. Construct new towers only if collocation is not feasible. Design new towers to allow for multiple transmitters to be collocated on a single new tower, no more than 199 feet above ground level (AGL), without lights or guy wires. (Towers taller than 199 feet are normally required by the Federal Aviation Administration (FAA) to employ aircraft warning lights.)

3. Consider the impacts of new towers to migratory birds, federally listed species, and other wildlife, cumulatively as well as individually when siting and designing networks of towers and antennas.

4. Site towers away from wetlands; areas with a known high incidence of fog, mist, and low cloud ceilings; and habitats supporting threatened or endangered species. Locate new towers within existing "antenna farms" (clusters of towers) if possible.

5. Avoid siting towers in or near known bird concentration areas (discussed on page 1); known bird migration or daily movement flyways; and areas known to be used habitually by significant numbers of breeding, feeding, or roosting birds. If such areas cannot be avoided, avoid construction during seasons of high bird activity.

6. Construct taller (>199 feet AGL) towers only if collocation and shorter towers are not viable options. Use the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA. Use only white (preferable) or red strobe lights at night unless otherwise required by the FAA, and employ the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) permitted by the FAA. Avoid solid red or pulsating red warning lights at night. (Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied (Manville, 2000).)

7. Construct guyed towers only if other tower designs (e.g., monopoles, lattice towers) are not viable options. Locate guyed towers away from known raptor and waterbird concentration areas and daily movement routes, and away from major diurnal migratory bird movement routes and stopover sites. If a guyed tower must be located in or near such an area, employ daytime visual markers on the wires. Do not use artificial lighting to increase visibility of the structure or guy wires; instead use reflective paint or materials, large balls, or other available technology. (For guidance on markers, see Avian Power Line Interaction Committee, 1994 and 1996.)

8. Avoid or minimize habitat loss within and adjacent to the "footprint" of new towers and appendant facilities. (However, a larger tower footprint is preferable to the use of guy wires.) Minimize road access and fencing to reduce or prevent habitat fragmentation and disturbance, and to reduce above-ground obstacles to birds in flight.

9. Design new towers structurally and electrically to accommodate the applicant's antennas and comparable antennas for at least two additional providers, for a minimum of three providers for each tower, to reduce the number of towers needed in the future (unless such a design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower).

10. Down-shield security lighting for on-ground facilities and equipment to keep light within the boundaries of the site.

11. Allow Service personnel and affiliated researchers access to proposed and existing tower sites upon request to: evaluate bird use; conduct dead-bird searches; place net catchments below the towers but above the ground; and place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.

12. Decommission towers that are no longer needed, particularly towers within or near bird concentration areas. As communication technology advances and tower-based technology becomes obsolete, provide for tower decommissioning, including removal, in any license application submitted to the FCC. Remove towers no longer in use or determined to be obsolete within 12 months of cessation of use.

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Avian Power Line Interaction Committee. 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, D.C. 78 pp.

_____. 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C. 128 pp.

Dunne, P., Editor. 1989. New Jersey at the Crossroads of Migration. New Jersey Audubon Society. Bernardsville, New Jersey. 75 pp.

Manville, A.M., II. 2000. The ABCs of avoiding bird collisions at communication towers: the next steps. Proceedings of the Avian Interactions Workshop, December 2, 1999, Charleston, South Carolina. Electric Power Research Institute. 15 pp.

FURTHER INFORMATION

Federal Communications Commission, Wireless Telecommunication Branch - Siting Issues
http://www.fcc.gov/wtb/siting/

Federal Communications Commission Telecommunications Act of 1996
http://www.fcc.gov/telecom.html

Ogden, L.J.E. 1996. Collision Course: The Hazards of Lighted Structures and Windows to Migrating Birds. World Wildlife Fund Canada and the Fatal Light Awareness Program. Toronto, Ontario, Canada. 46 pp.

Towerkill.com
http://www.towerkill.com

U.S. Fish and Wildlife Service Endangered Species Home Page
http://endangered.fws.gov/

U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Bird Issues
http://migratorybirds.fws.gov/issues/tblcont.html

U.S. Fish and Wildlife Service
New Jersey Field Office
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TOWER SITE EVALUATION FORM

1. Location (Provide maps if possible):
   State:_____ County:_____ Latitude/Longitude/GPS Grid:_____
   City and Highway Direction (e.g., 2 miles W on Hwy 20)_____
   _____

2. Elevation above mean sea level: _____

3. Will the equipment be co-located on an existing **FCC licensed** tower or other existing structure ((e.g., building, billboard)? (y/n)_____ If yes, type of structure:_____If yes, no further information is required.

4. If no, provide proposed specifications for new tower:
   Height: _____ Construction type ((e.g., lattice, monopole):_____
   _____
   Guy-wired? (y/n)_____ No. bands:_____ Total No. Wires:_____
   Lighting (Security & Aviation):_____
   _____
   _____

   If tower will be lighted or guy-wired, complete items 5-19. If not, complete only items 19 and 20.

5. Area of tower footprint in acres or square feet:_____

6. Length and width of access road in feet:_____

7. General description of terrain (e.g., mountainous, rolling hills, flat to undulating). Photographs of the site and surrounding area are beneficial:
   _____
   _____
   _____

8. Meteorological conditions (e.g., incidence of fog, low ceilings.):_____
   _____

9. Soil type(s):_____

10. Habitat types and land use on and adjacent to the site, by acreage and percentage of total: ___
    _____
    _____
    _____

11. Dominant vegetative species in each habitat type:_____

12. Average diameter breast height of dominant tree species in forested areas:_____

13. Will construction at this site cause fragmentation of a larger block of habitat into two or more smaller blocks? (y/n)_____ If yes, describe:_____

14. Is evidence of bird roosts or rookeries present? (y/n)_____ If yes, describe:_____

15. Distance to nearest wetland area (e.g., forested swamp, marsh, riparian, marine), and coastline if applicable:_____

16. Distance to nearest telecommunications tower:_____

17. Potential for co-location of antennas on existing towers or other structures:_____

18. Have measures been incorporated for minimizing impacts to migratory birds? (y/n)_____If yes, describe:_____

19. Has an evaluation been made to determine if the proposed facility may affect listed or proposed endangered or threatened species or their habitats as required by FCC regulation at 47 CFR 1.1307(a)(3)? (y/n) _____ If yes, present findings:_____

20. Additional information required: